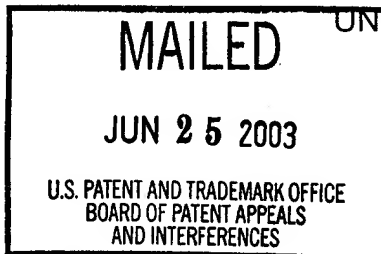


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 51



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ARTURO J. GARCIA and ARTURO H. GARCIA

Appeal No. 2002-0231
Application No. 08/472,876

ON BRIEF¹

Before BARRETT, DIXON, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection.

We reverse, and enter new grounds of rejection in accordance with 37 CFR § 1.196(b).

¹ Appellants waived oral hearing in a communication filed via facsimile on December 16, 2002 (Paper No. 50).

BACKGROUND

According to appellants, the invention relates to enhancing an electronic audio signal by the addition of harmonics. Representative claim 31 is reproduced below.

31. An apparatus comprising:

a source of an input audio signal produced from audible sound and having a band of frequencies with a high end and a low end; and

a circuit connected to said source to receive said input audio signal and operatively adapted such that when said input audio signal having a band of frequencies with a high end and a low end is transmitted therethrough, the input audio signal is distorted so as to increase in amplitude as per increasing frequencies from a reference frequency up to an amplitude peak at a high frequency and, after the high frequency, decrease in amplitude as per increasing frequencies toward the high end, and the reference frequency separates the band of frequencies into a band of high frequencies and a band of low frequencies, whereby an enhanced audio signal is produced that is recognizable as being said input audio signal enhanced such that audible sound reproduced from the enhanced audio signal exhibits a perceptively improved harmonic quality and sound source separation compared to audible sound reproduced from the input audio signal.

The examiner relies on the following references:

Op de Beek et al. (Op de Beek)	4,845,758	Jul. 4, 1989
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Howard M. Tremaine (Audio Cyclopedia), Basic Principles of Sound, "Audio Cyclopedia," Second Edition, Howard W. Sams & Co., Inc., Indianapolis, Indiana, pp. 20-23 (1979).

Sadaoki Furui (Furui), Speech Production Models, "Digital speech processing, synthesis, and recognition," Marcel Dekker, Inc., New York, New York, pp. 25-29 (1989).

Claims 31, 33, 34, 43, 35, 37, 14, 44, 40, 45, and 51-53 stand rejected under 35

U.S.C. § 102 as being anticipated by Op de Beek, Audio Cyclopedia, or Furui.

Appeal No. 2002-0231
Application No. 08/472,876

Claims 15, 38, and 46-50 stand rejected under 35 U.S.C. § 103 as being unpatentable over Op de Beek, Audio Cyclopedia, or Furui.

An earlier rejection of claims 51, 52, and 53 under 35 U.S.C. § 112, second paragraph, has been withdrawn following entry of an amendment after the final rejection.

Claims 2, 5, 9, 24, and 28 are objected to as depending from rejected base claims.

Claims 1, 3, 4, 6-8, 10-13, 16-23, 25-27, 29, 30, 32, 36, 39, 41, and 42 have been canceled.

We refer to the Final Rejection (Paper No. 29) and the Examiner's Answer (Paper No. 44) for a statement of the examiner's position and to the Brief (Paper No. 40) for appellants' position with respect to the claims which stand rejected.

OPINION

The rejections over prior art

For the reason that we cannot ascertain the scope of the claims subject to the standing rejections over the prior art, we must reverse, pro forma, the rejections under 35 U.S.C. §§ 102 and 103. If certain claim language is not understood, then any attempt to apply art against that claim can only be based on speculation. Rejections of claims over prior art should not be based on speculation as to the meaning of terms

(1)

Appeal No. 2002-0231
Application No. 08/472,876

employed and assumptions as to the scope of the claims. In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962).

Amendments to the specification

The extensive amendment to the written description, filed December 22, 1997 (Paper No. 20), was not properly submitted in accordance with the pertinent rule for submission of amendments (37 CFR § 1.121 (1997)), and has not been formally entered in the file wrapper. However, the examiner and appellants appear to have proceeded as if the amendment was entered. Further, we find an apparent hand-written notation on the paper from the examiner that the amendment is "ok to enter." We thus consider the substance of the instant specification as if amended by insertions to the Summary of the Invention and the Detailed Description, as detailed in the amendment filed December 22, 1997.

(2)

In this opinion we will refer to the original written description, original claims, original abstract, and drawings (unamended) as filed in the instant application as the "disclosure." We will refer to the written description as modified by amendments during prosecution as the "specification."

New grounds of rejection -- 37 CFR § 1.196(b)

We enter the following new ground of rejection against the claims in accordance with 37 CFR § 1.196(b): claims 2, 5, 9, 14, 15, 24, 28, 31, 33-35, 37, 38, 40, and 43-53

(all the remaining claims) are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The function of claims is (1) to point out what the invention is in such a way as to distinguish it from the prior art; and (2) to define the scope of protection afforded by the patent. In re Vamco Mach., Inc., 752 F.2d 1564, 1577 n.5, 224 USPQ 617, 635 n.5 (Fed. Cir. 1985). The legal standard for definiteness is whether a claim reasonably apprises those of skill in the art of its scope. In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). The inquiry is merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). The definiteness of the language employed must be analyzed -- not in a vacuum, but in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

Instant claim 31 recites that "the input audio signal is distorted so as to increase in amplitude as per increasing frequencies from a reference frequency up to an amplitude peak at a high frequency end...." The claim does not expressly define the term "reference frequency." Nor do we find any guidance in the disclosure for ascertaining what the "reference frequency" may be. Material to be added to the disclosure, in accordance with the amendment filed December 22, 1997 (Paper No.

20), refers to a “desired reference frequency,” but does not explain what the “reference” frequency may be.

The claim includes a “whereby” clause reciting that an enhanced audio signal is produced that “is recognizable as” being the input audio signal enhanced such that audible sound reproduced from the enhanced audio signal “exhibits a perceptively improved” harmonic quality and sound source separation compared to audible sound reproduced from the input audio signal.

The claim does not convey in express terms how the “enhanced audio signal” is to be “recognizable” -- e.g., by instrument measurement or by a human listener deeming the signal “recognizable.” The instant specification does not provide guidance, such as identifying values obtained by objective measurements on the “enhanced” audio signal, for determining whether it is “recognizable” as the input audio signal “enhanced.” If the relevant claim language is intended to refer, implicitly, to a human listener, we note that human decisions regarding what may be “recognizable” or not recognizable would appear to be inherently subjective, leading to the conclusion that the claim fails to properly set out the metes and bounds of the protection that is solicited.

We consider the further recitation in the “whereby” clause of claim 31, reciting a “perceptively improved” harmonic quality and sound source separation, to be deficient for substantially the same reasons we have articulated with respect to the “recognizable” recitation in the claim. There is no guidance in the instant specification

as to how one may ascertain whether or not the harmonic quality and sound source separation is "perceptively improved."

We are unable to ascertain the metes and bounds of the claims that use the terms "reference frequency," "recognizable," and "perceptively improved" in the contexts we have identified. Since the same or substantially the same recitations using the terms appear in at least independent claims 31, 35, and 40, we conclude that none of the claims on appeal pass muster under section 112, second paragraph. Dependent claims 2, 5, 9, 24, and 28 are also subject to the new ground of rejection.

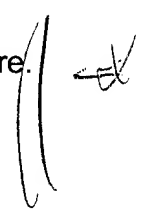
We enter the additional new ground of rejection against the claims in accordance with 37 CFR § 1.196(b): Claims 2, 5, 9, 14, 15, 24, 28, 31, 33-35, 37, 38, 40, and 43-53 (all the remaining claims) are rejected under 35 U.S.C. § 112, first paragraph, as appellants' disclosure fails to provide written description for the invention now claimed.²

To comply with the written description requirement of 35 U.S.C. § 112, first paragraph, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991).

² New matter corresponding to language in the instant claims has apparently been added to the written description during prosecution, and may also be objected to under 35 U.S.C. § 132. In the event of further prosecution before the examiner, we leave the ultimate determination with respect to section 132 and the instant specification to the examiner and appellants. Moreover, as we have pointed out supra, the record contains ambiguity with respect to amendments made to the written description.

Instant claim 31 recites "the input audio signal is distorted so as to increase in amplitude as per increasing frequencies from a reference frequency up to an amplitude peak at a high frequency and, after the high frequency, decrease in amplitude as per increasing frequencies toward the high end, and the reference frequency separates the band of frequencies into a band of high frequencies and a band of low frequencies...."

As we noted in the preceding rejection under section 112, second paragraph, we are unable to ascertain the metes and bounds of the term "reference frequency."

Irrespective of its true meaning, however, the term does not appear in the disclosure. Nor do we find support for the remainder of the recitation relating frequencies and amplitudes. 

Language referring to a "desired reference frequency" and relating frequencies and amplitudes was submitted as an amendment to the written description in the preliminary amendment filed February 22, 1996 (Paper No. 7). Following rejections under 35 U.S.C. § 112, first paragraph, appellants submitted two declarations pursuant to 37 CFR § 1.132 (filed April 25, 1997; Paper No. 14). The declarations were deemed by appellants to show, inter alia, that "the described frequency response is inherent to the structure of the apparatus disclosed in the instant patent application." (Applicants' Remarks, page 8 of amendment filed April 25, 1997; Paper No. 15.)

We have considered the declarations. One declarant, a named co-inventor, states that he transmitted an "audio" signal (presumably, an electronic signal of audio frequency) in the form of a square wave through "one channel of the audio circuit

disclosed in Fig. 3" of the application. The declarant further states that "I viewed the resulting frequency response on a conventional oscilloscope." The declaration asserts that attached are photocopies, as Exhibits A and B, "of two oscilloscope curves of the square wave audio signal before and after being transmitted through the audio circuit."

While the declaration suggests that output Exhibit B represents frequency response of the system, it appears to us that the photocopy depicts a time domain oscilloscope trace, perhaps an output to a time domain square wave signal input shown in Exhibit A. In any event, there are no discernable indications in either exhibit with respect to what the ordinate and abscissa axes are to represent.

The second declarant, Dr. Donald Moon, states that "frequency response can...be viewed on an oscilloscope." Dr. Moon does not, however, mention or address either of Exhibits A or B in the declaration.

"Frequency response" may be defined as "[a] measure of the effectiveness which a circuit, device, or system transmits the different frequencies applied to it." McGraw-Hill Dictionary of Scientific and Technical Terms, Fifth Ed. at 806 (1994). More pertinent to the problem at hand, "frequency response" is considered synonymous to "amplitude-frequency response," which is a "graph that shows how the gain or loss of a device or system varies with frequency." McGraw-Hill Electronics Dictionary, Fifth Ed. at 20 and 221 (1994). The "frequency response" of an electrical system is normally expressed as a plot of amplitude (e.g, voltage) with respect to frequency (e.g., Hertz).

We concur with Dr. Moon's assertion that frequency response can be viewed on an oscilloscope. Many modern oscilloscopes are equipped with Fast Fourier Transform (FFT) circuitry for plotting the frequency response of an electrical system. We also acknowledge that general or qualitative frequency response characteristics of a system may be gleaned from a time domain trace. However, we are unable to read the claim 31 recitations relating amplitude to frequency on the oscilloscope trace of Exhibit B. Moreover, as we have noted previously, the trace does not appear to be a plot of amplitude with respect to frequency.

We further observe that the written description (at pages 10 through 13) provides many specifics with respect to the components making up the circuit of Figure 3. We acknowledge the possibility of describing, by drawings and verbal description, an electrical circuit with a specificity such that the frequency response of the system may be conveyed to the artisan as an inherent feature of the system. For example, one might analyze a well-described system, using known circuit analysis techniques, and determine the frequency response of the system, thus not requiring express disclosure of an inherent response.

In this case, however, the circuitry of Figure 3 contains elements that are described as novel -- not available to the artisan at the time of disclosure. Novel "[e]nergy transfer system 54" is described as comprising "coil 18" and "field receptor 26." Coil 18 and field receptor 26 are described as being encapsulated by a particular

potting compound, and having a gap G (Fig. 2) of approximately 0.025 inches. (Spec. at 11, ll. 8-22.)

The instant specification elsewhere teaches (e.g., pg. 6, l. 32 - pg. 7, l. 14), however, that other factors, such as the number of coil turns and the material making up the field receptor, may also influence performance of the system, thus adding a degree of unpredictability. Based on this record, we consider it unlikely that the disclosure inherently conveys, to the artisan, a particular frequency response for the circuit of instant Figure 3.³

The remaining independent claims (35 and 40) contain the same or substantially the same recitations as the claim 31 recitations that we find the disclosure fails to support. We conclude that all of the claims on appeal are subject to the rejection under section 112, first paragraph. Dependent claims 2, 5, 9, 24, and 28 are also subject to this new ground of rejection.

CONCLUSION

The rejections of claims 31, 33, 34, 43, 35, 37, 14, 44, 40, 45, and 51-53 under 35 U.S.C. § 102 and of claims 15, 38, and 46-50 under 35 U.S.C. § 103 are reversed.

³ Whether an artisan could build a circuit based on the description of instant Figure 3 and, without undue experimentation, reproduce a given frequency response is a separate question. The "description of the invention" requirement in 35 U.S.C. § 112, first paragraph is separate and distinct from the enablement requirement. In re Barker, 559 F.2d 588, 591, 194 USPQ 470, 472 (CCPA 1977).

Appeal No. 2002-0231
Application No. 08/472,876

Claims 2, 5, 9, 14, 15, 24, 28, 31, 33-35, 37, 38, 40, and 43-53 (all the remaining claims) are newly rejected by us under 35 U.S.C. § 112, first and second paragraphs.

This decision contains new grounds of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claim:

(1) Submit an appropriate amendment of the claim so rejected or a showing of facts relating to the claim so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner

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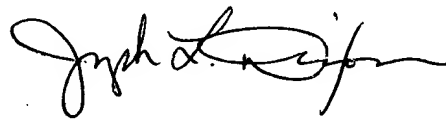
(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

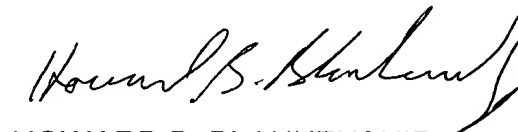
Appeal No. 2002-0231
Application No. 08/472,876

No time period for taking any subsequent action in connection with this appeal
may be extended under 37 CFR § 1.136(a).

REVERSED -- 37 CFR § 1.196(b)


LEE E. BARRETT
Administrative Patent Judge


JOSEPH L. DIXON
Administrative Patent Judge


HOWARD B. BLANKENSHIP
Administrative Patent Judge

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Appeal No. 2002-0231
Application No. 08/472,876

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